



Porotrichum tenuinerve (Musci: Neckeraceae), A New Species from Honduras, with a Provisional Key to *Porotrichum* in Central America

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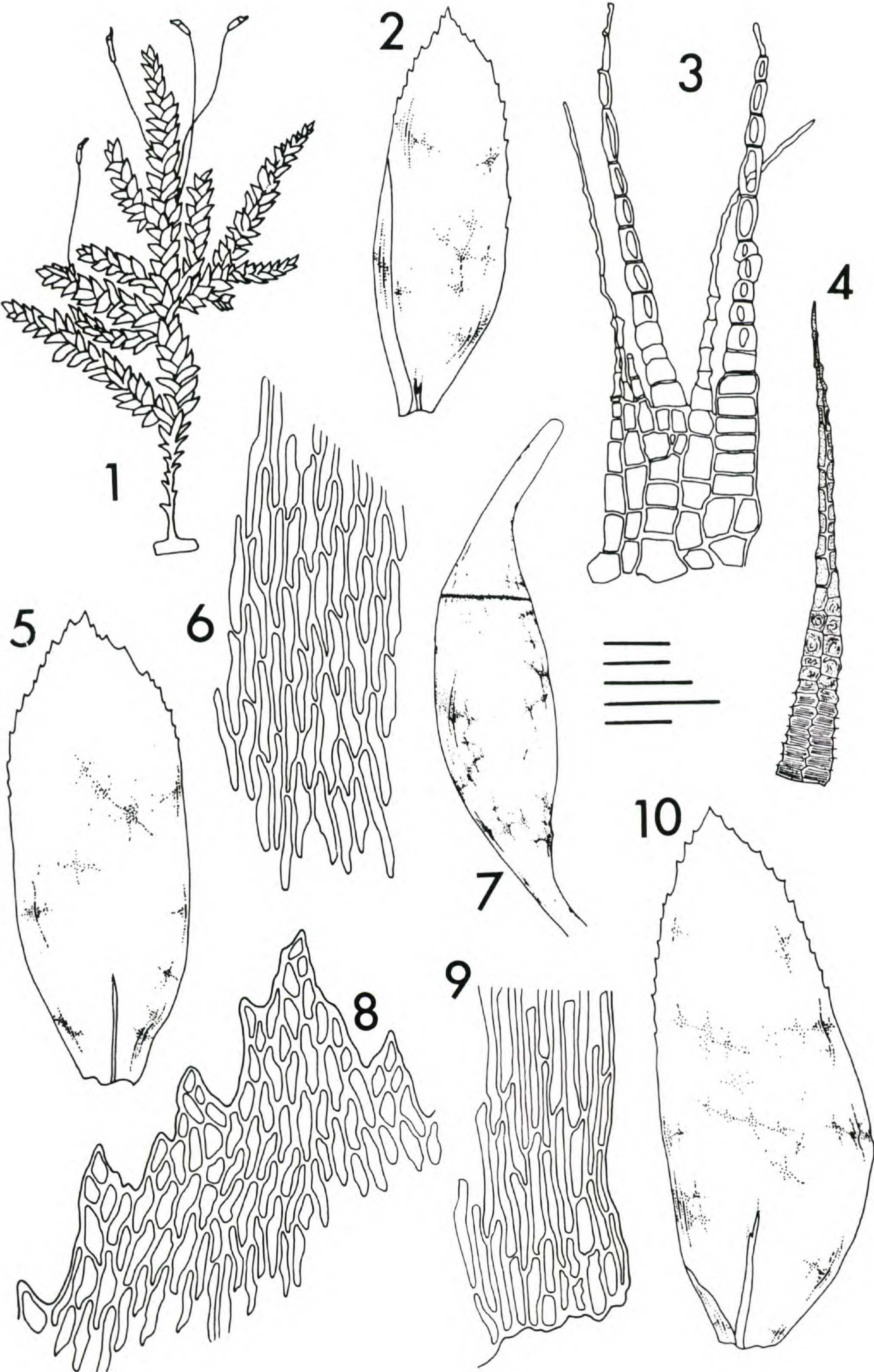
ABSTRACT. *Porotrichum tenuinerve* sp. nov. differs from other species in the genus by its gonioautoicous condition and short, frequently double costae. A key to the species of *Porotrichum* in Central America is given, which incorporates synonymy proposed by Sastre-de Jesús and Smith. *Porotrichum mutabile* Hampe, *P. insularum* Mitten, and *P. plagiorhynchum* Renauld & Cardot are tentatively placed in the synonymy of *Porotrichum longirostre* (Hooker) Mitten; *Homaliodendron piniforme* (Bridel) Enroth is reported for the first time from Central America (Panama).

Porotrichum is a prevalent moss genus in Central American cloud forests, where it grows on tree trunks and branches, boulders and rock outcrops. It has a dendroid habit with erect stems arising along well-developed stolons. *Porotrichum* species may have up to five different leaf morphologies: stolon, stipe, stem, branch, and flagellate branch leaves. Taxonomic characters of specific importance are found in the relative size of the plants and leaves, leaf cell shape, leaf margin dentation, and leaf shape. Due in part to the variability of its leaf morphologies, the taxonomy of the group is unsettled. There appear to be many more names in the literature than species in nature. Regardless of its overdescribed status, the genus still harbors novelties, as can be seen in the following Honduran collection of *Porotrichum*. This moss is strikingly different from all other Latin American species of the genus and represents a species new to science.

Porotrichum tenuinerve B. Allen, sp. nov. **TYPE:** Honduras. Lempira: Montaña de Celaque, trail from Camp Don Tomas to first ridge, 14°34'N, 88°39'W, Allen 11338 (holotype, MO; isotypes, NY, TEFH). Figures 1–10.

A *P. longirostri* costis brevibus saepe duplicibus et statu monoico sexuali differt.

Plants medium size, 3–6 cm high, yellow-green to green, dendroid and frondose, irregularly pinnate, flagellate branches sometimes formed distally. Stolons creeping with reduced leaves and abundant rhizoids. Stipes 10–15 mm long, in cross section with epidermis of 2–3 layers of small, thick-walled, red cells and cortex of 6–9 outer layers of somewhat larger, thick-walled, yellow cells, 7–10 inner layers of larger, firm-walled, orange cells, central strand well developed, sometimes with a dense, black discoloration. Stem leaves complanate, smooth when dry, asymmetric, oblong-cultriform, 2–3 mm long, 0.7–1.0 mm wide, broadly acute, broadly apiculate, margins serrate or dentate at apex, teeth sometimes of 2–3 cells, serrulate to midleaf; costa very short and double or single and reaching $\frac{1}{3}$ leaf length; upper cells long-rhomboidal, 30–60 μm long, 7–10 μm wide, median and basal cells linear-fusiform to vermicular, 50–90 μm long, 6–10 μm wide, alar cells shorter, often porose. Branch leaves variable, identical to stem leaves or oval below and spatulate above with intermediate forms common. Axillary hairs 4–6 cells long, 1–2 short, quadrate, reddish, firm-walled basal cells and 3–4 elongate, hyaline, thin-walled cells. Gonioautoicous. Setae 15–20 mm long, reddish yellow. Capsules erect to suberect, ovoid-cylindrical, somewhat constricted at base, 1.5–2.0 mm long, stomata present at base; opercula conic-rostrate, 1.5 mm long. Exostome teeth linear, 0.6–0.8 mm long, 0.08 mm wide at base, dorsal surface striate-papillose below, vermiculate-papillose at middle, lightly papillose above, trabeculae and median line thin below, thickened in the upper $\frac{1}{3}$; ventral surface with projecting trabeculae, lightly papillose. Endostome lightly papillose; basal membrane 0.2 mm long, processes 0.4–0.5 mm long,



broadly perforate, cilia 1–3, 0.30–0.35 mm long. Calyptra tubular-cucullate 2–3 mm long, smooth. Spores spherical, lightly papillose, 14–20 μ m.

Habitat. At base of twigs and on root at base of massive tree; 2,170–2,180 m.

Porotrichum tenuinerve is similar to *P. longirostre* in size and aspect, and in its tendency to have multicellular, dentate teeth on the leaf margins. It differs from all members of *Porotrichum* in having a short costa (not more than $\frac{1}{3}$ the leaf length) that may be double or single, and a gonioautoicous sexual condition. Within the Neckeraceae, *Porotrichum* is characterized by its slender, single costa that reaches from $\frac{1}{2}$ to $\frac{3}{4}$ the leaf length and by its dioicous condition. The short costa in *P. tenuinerve* seems a striking exception, but it actually only represents the end of a morphological continuum. The presence of a gonioautoicous species in an otherwise dioicous genus would seem significant, but the importance of this feature is minimized by the report (Fleischer, 1908) of autoicous species in the closely related genus *Porothamnium*.

KEY TO THE SPECIES OF *POROTRICHUM* IN CENTRAL AMERICA

- 1a. Branch leaf margins dentate by multicellular teeth 2
- 1b. Branch leaf margins serrate by unicellular teeth 3
 - 2a. Costae short and double or single and $\frac{1}{3}$ the leaf length, plants gonioautoicous *P. tenuinerve* Allen
 - 2b. Costae single, $\frac{1}{2}$ – $\frac{3}{4}$ the leaf length, plants dioicous *P. longirostre* (Hooker) Mitten
- 3a. Stem leaves to 1 mm long, branch leaves to 0.6 mm long *P. brevifolium* Bartram
- 3b. Stem leaves greater than 1.5 mm long, branch leaves greater than 0.6 mm long 4
 - 4a. Costae short and double or single and $\frac{1}{3}$ the leaf length, plants gonioautoicous *P. tenuinerve* Allen
 - 4b. Costae single, $\frac{1}{2}$ – $\frac{3}{4}$ the leaf length, plants dioicous 5
- 5a. Branch leaves tumid, concave 6
- 5b. Branch leaves complanate, flattened 7
 - 6a. Upper leaf margins broadly inflexed, serrulate; upper leaf cells short-rhomboidal
.....*P. lindigii* (Hampe) Mitten
 - 6b. Upper leaf margins plane or erect, sharply denticulate; upper leaf cells hexagonal, subquadrate, or rhombic*P. guatemalense* Bartram
- 7a. Plants less than 5 cm high, stipe leaves recurved, branch leaves plicate *P. substriatum* (Hampe) Mitten
- 7b. Plants 6–10 cm high, stipe leaves spreading to erect, branch leaves plicate or smooth 8
 - 8a. Branch leaves lanceolate, narrowly acute *P. longirostre* (Hooker) Mitten
 - 8b. Branch leaves obovate, obtuse 9
- 9a. Branch leaves serrate only in upper half *P. korthalsianum* (Dozy & Molkenboer) Mitten
- 9b. Branch leaves serrate nearly to base *P. lancifrons* (Hampe) Mitten

Acknowledgments. This work was supported by National Geographic Society grant 4556-91, Proyecto CONSERFORH (COHDEFOR-ODA), and National Science Foundation Grant DEB-9400996 (to the Missouri Botanical Garden). I thank Robert E. Magill for his comments on this species, and Jo-

Paratype. HONDURAS. **Lempira:** same locality as holotype, Allen 11334 (MO, TEFH).

The following key to the *Porotrichum* species in Central America is based on my examination of recently collected material. It is intended as a preliminary, working account and incorporates synonymy proposed by Sastre-de Jesús (1987) and Smith (1994). In addition, based upon my examination of herbarium material, *Porotrichum mutabile* Hampe, *P. insularum* Mitten, and *P. plagiorhynchum* Renault & Cardot are tentatively placed in the synonymy of *Porotrichum longirostre* (Hooker) Mitten.

Enroth (1990) transferred *Porotrichum piniforme* (Bridel) Mitten to *Homaliodendron* because, among other reasons, it lacks a stem central strand. *Homaliodendron piniforme* (Bridel) Enroth has never been reported from Central America, but the species has recently been collected in Panama (Bocas del Toro: Allen 5605 (MO, PMA)).

hannes Enroth, Si He, and Harold Robinson for their critical reviews of the manuscript.

Literature Cited
Enroth, J. 1990. Notes on the Neckeraceae (Musci) 3–7. *Homaliodendron piniforme* comb. nov. and new

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Figures 1–10. *Porotrichum tenuinerve* B. Allen. —1. Habit. —2, 5. Branch leaves. —3. Endostome basal membrane, segments, and cilia, ventral (inner) surface. —4. Exostome tooth, dorsal (outer) surface. —6. Median leaf cells. —7. Capsule and operculum. —8. Leaf apex and upper leaf cells. —9. Leaf alar region. —10. Stem leaf. Scales in mm: top = 6.25 (1); subtop = 0.5 (7); middle = 0.1 (3, 4); subbottom = 0.5 (2, 5, 10); bottom = 0.05 (6, 8, 9). All drawings from the holotype. (Drawn by the author.)

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